

High Strength Metal Foils



Nanovate™

Integran's series of nanocrystalline metal foils are hard and strong, ideal for your high performance application



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THE NEXT GENERATION OF HIGH PERFORMANCE MATERIALS

Overview of Foil Specifications/Features

- ▶ **General**
 - High hardness, strength and durability
 - Excellent etchability for fine, sharp features
- ▶ **Thickness Range Available**
 - 10 - 100 microns (0.001" - 0.004") as rolls
 - >100 microns as panels
- ▶ **Grain Structure**
 - Nanocrystalline or fine grained
- ▶ **Width Range**
 - 6" - 8" standard
 - Other widths - please inquire

Mechanical Properties

Product ID	N1010/1015	N1210	N2035	C4010
Composition	Nickel (nanocrystalline)	Nickel Cobalt (nanocrystalline)	Nickel Iron (nanocrystalline)	Copper (Ultra finegrained)
Potential Usage	Higher strength alternative to BeCu	Higher strength alternative to Stainless	Higher strength alternative to low CTE Kovar	Ultra-pure, High conductivity alternative to BeCu
Sample Applications	Etched interconnects, EMI Gaskets	PCB overlays PCB stencils, complex electroforms	Lead frames	EMI Gaskets, fingers
Hardness (VHN)	450-550	500-550	500-550	100
Yield Strength	800-1100 MPa 115-160 ksi	1100 Mpa 160 ksi	1100 Mpa 160 ksi	225 MPa 33 ksi
Ultimate Strength	1300 MPa 190 ksi	1600 MPa 230 ksi	1600 MPa 230 ksi	310 MPa 45 ksi
Elongation to Failure	1-7%	7%	7%	40%
Electrical Conductivity	9 μOhm-cm	NA	60 μOhm-cm	1.7 μOhm-cm
Corrosion Resistance	Excellent (>BeCu)	Excellent	Similar to Kovar	NA
Bend Fatigue performance	Excellent (>BeCu)	NA	NA	NA

NA: No data available for this Alloy